

title.

연습문제 2-1

date.

$$\#2-(a) \quad y = x^3 = f(x)$$

$$\hookrightarrow \frac{dy}{dx} = f'(x)$$

$$= \lim_{\Delta x \rightarrow 0} \frac{f(x+\Delta x) - f(x)}{\Delta x}$$

$$= \lim_{\Delta x \rightarrow 0} \frac{(x+\Delta x)^3 - x^3}{\Delta x}$$

$$= \lim_{\Delta x \rightarrow 0} \frac{3x\Delta x(x+\Delta x)}{\Delta x} = 3x^2 \quad \#$$

$$\#2-(c) \quad y = \sqrt{3x+1} = g(x)$$

$$\hookrightarrow \frac{dy}{dx} = g'(x)$$

$$= \lim_{h \rightarrow 0} \frac{g(x+h) - g(x)}{h}$$

$$= \lim_{h \rightarrow 0} \frac{\sqrt{3(x+h)+1} - \sqrt{3x+1}}{h}$$

$$= \lim_{h \rightarrow 0} \frac{3h}{3h(\sqrt{3(x+h)+1} + \sqrt{3x+1})}$$

$$= \frac{1}{\sqrt{3x+1}} \quad \#$$